A tale of two halves for February and winter

Description

As February and winter draw to a close, early statistics show that both have been stories of two halves.

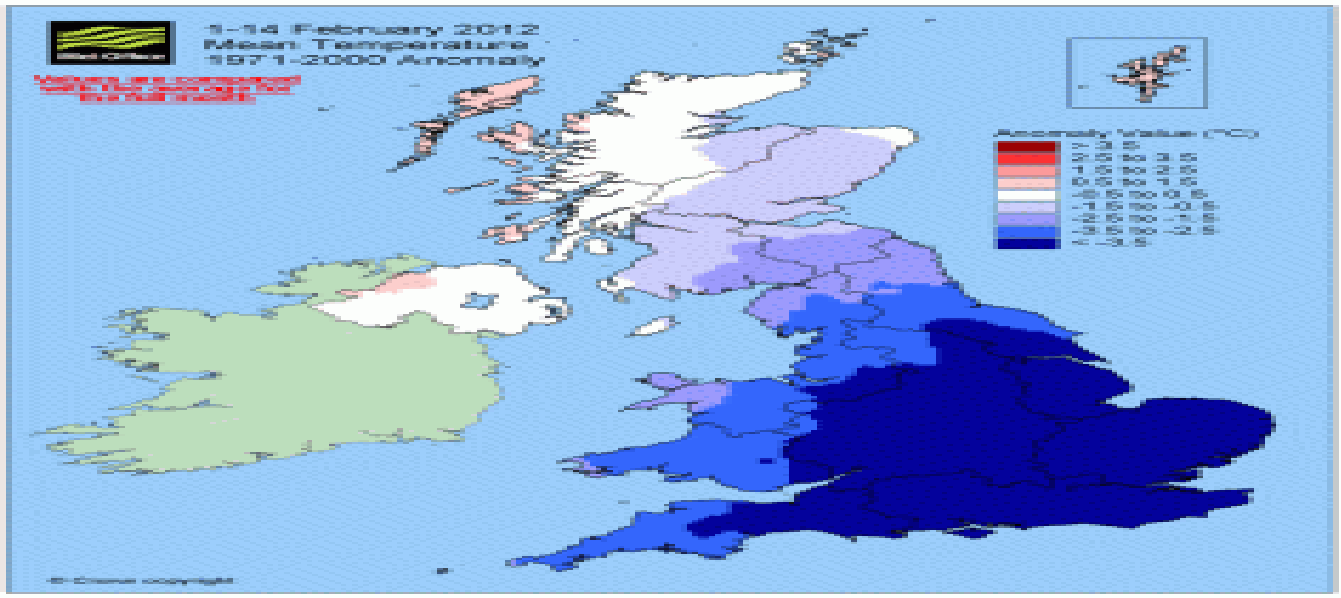
We often talk about why you can't pre-judge a month or a season at its half-way stage, and the latest figures perfectly illustrate why that's the case.

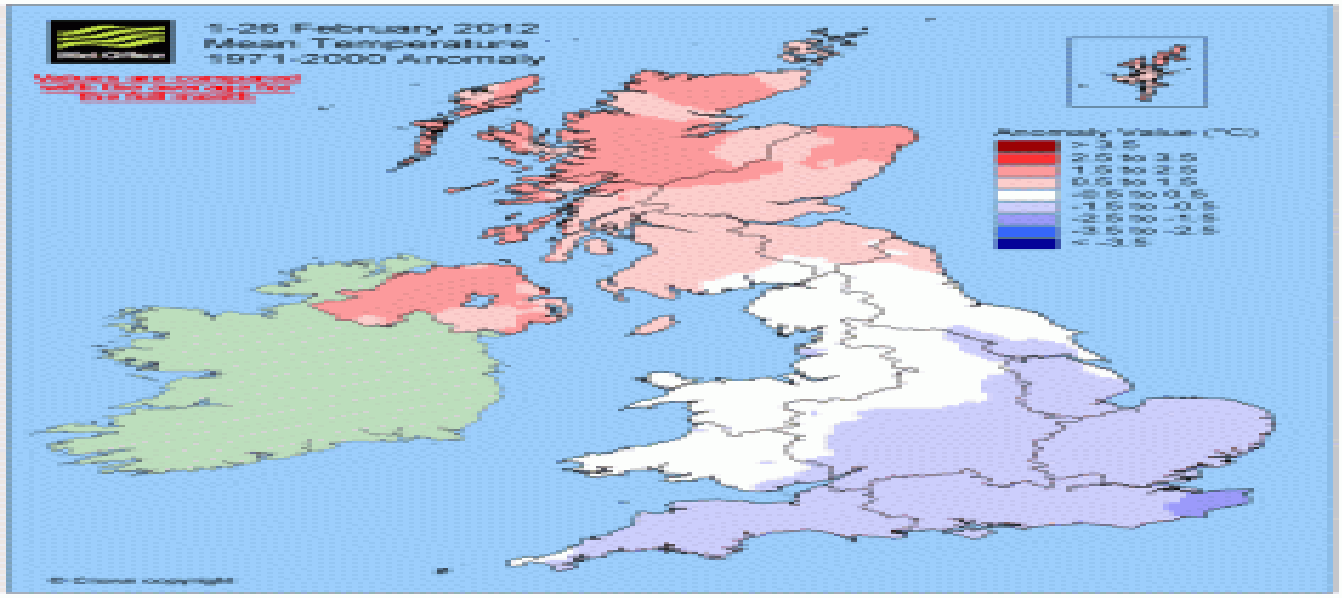
The mean temperature for the first half of February was very low as cold weather gripped the UK – particularly in England where temperatures were 4 °C colder than the long term (1971-2000) average.

If you'd projected those figures out to the end of the month you would have expected one of the coldest Februarys on record.

However, the second half of the month (figures go up 26 February) has seen some exceptionally mild weather to balance things out and we have ended up with a rather average month for overall UK mean temperature which so far, was just 0.1 °C above average.

This story of two halves can be seen in the maps below, with the blue colours denoting lower than average temperatures in the half-month figures on the left, and the more balanced situation by the end of the month on the right.





Winter, which meteorologically speaking runs from December to February, has been a fairly similar story – but in reverse.

A mild December and first half of January meant we had a very mild first half of the season, which led to some media headlines mooting one of the mildest winters on record.

However, the last few days of January and the first half of February were colder than average, bringing the overall temperature for the season down.

With a couple of days still to go, the early statistics show the UK's mean temperature for winter is 0.7 C above average, making this a mild winter – comparable with several other mild winters in the last decade.

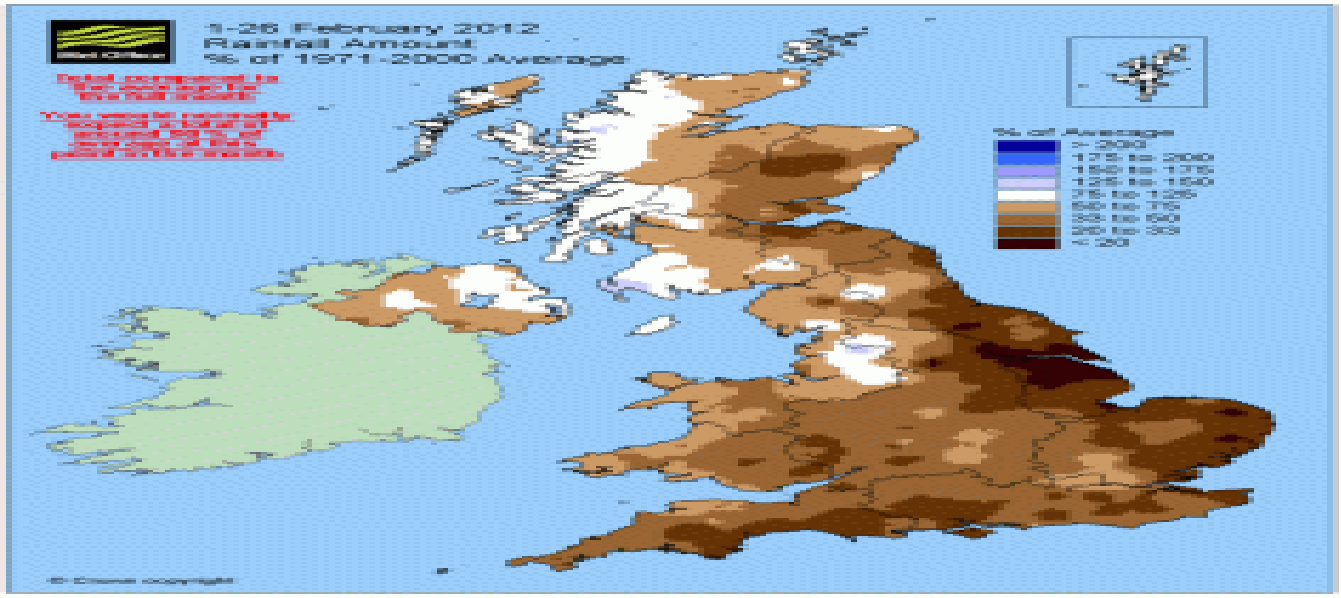
One common theme between this February and winter as a whole is dry weather – particularly for the south and east of the UK.

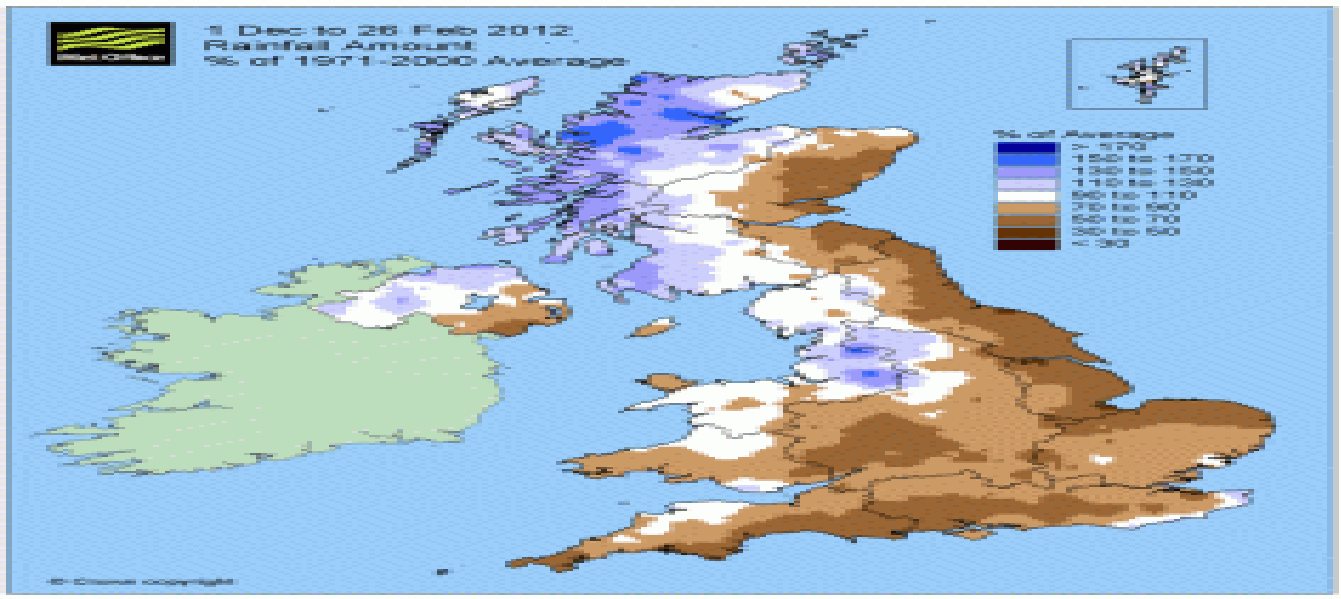
February was particularly dry, with the UK having seen just 62% of the normal amount of rainfall we'd expect for the whole month by the 26th. With a few days left, this is unlikely to change by much.

England was the driest country, having so far seen just 43% of the rainfall we'd expect for the month and Wales not far behind at 49%.

Winter has also been dry overall in England, with just 82% of the rainfall expected for the season and Wales has seen 89%. This is slightly balanced out in the statistics by Scotland being wetter than normal over the season, seeing 116% of its normal rainfall.

The relative lack of rainfall for February and the season as a whole can be seen in the two maps below, with the brown colours denoting drier than average weather for the month on the left and for the season on the right.





Date Created
February 2012

Warmest February day since 1998

Description

Yesterday saw many parts of the UK enjoying sunshine and exceptionally mild weather for the time of year.

The highest temperature recorded yesterday was 18.7 °C at Coleshill, Warwickshire, making this the warmest February day in the UK since 1998.

Here is a selection of yesterday's high temperatures around the UK:

18.7 °C Coleshill, Warwickshire
18.3 °C Market Bosworth, Leicestershire
18.2 °C Santon Downham, Suffolk
18.2 °C Shoeburyness, Essex
17.6 °C Donna Nook, Lincolnshire
17.1 °C Kew Gardens, London
16.7 °C Hawarden, Flintshire
15.9 °C Dyce, Aberdeen
15.1 °C Killowen, Newry and Mourne

The mild weather is set to continue into next week, with the best of the sunshine and the highest temperatures always likely in central and eastern parts of England and eastern Scotland. It will feel pleasant in any sunshine but we can expect some cold nights over the weekend, with a touch of frost around on Sunday morning.

Date Created
February 2012

Met Office in the Media: 22 February 2012

Description

There is some **mild weather for the time of year** on its way tomorrow with temperatures climbing to the mid teens across the UK. Some newspapers, such as The Sun, the Daily Mail and the Daily Express, have been suggesting that the UK will be warmer than Hawaii tomorrow. Although this would be very nice, I am afraid to say this is not quite true, with temperatures in Honolulu predicted to be up to 26 deg C on Thursday.

Although it will be mild for many, it will still be mainly cloudy with further light rain in the west. Some mist and fog is also likely across western coasts and hills. The best chance of bright or sunny spells developing will be to the east of country, especially in the shelter of hills. Where the sun comes out, temperatures are likely to be very mild for late winter.

Top temperatures on Thursday are expected to be around 16 or 17 deg C in parts of central and eastern England, while Scotland is likely to see its warmest spots in the east, where it could reach up to 15 deg C.

So, although Thursday will be a very mild day for the time of year and while some places may see some bright spells, it certainly will not be wall to wall sunshine. Unfortunately, it will also be nothing like Hawaii – more like a mild, pleasant late winter day in the UK.

The mild temperatures fall away a little as we head into Friday and the weekend as rain sinks south on Friday, with brighter, colder conditions to the north. Most places are expected to be dry on Saturday but rain is likely to return to western parts later in the day and on Sunday.

Forecast maximum temperature ranges for the next 5 days for Manchester from the Met Office beta website

Elsewhere there has been widespread coverage of the findings of the Science and Technology report

on **The Science of the Met Office** which endorsed the trust the nation has in the Met Office to provide forecasts and warnings when it matters. Coverage has focused on the reports recommendations for additional computer resource at the Met Office. We welcome the committee's recommendation; all witnesses highlighted the significant socio-economic benefits which could be gained from increased supercomputer capacity. Increased supercomputing resource would enable existing research findings to be used in the creation of weather and climate predictions, helping to improve the accuracy, reliability and relevance of forecasts on all timescales

However, it is important to recognise that funding for additional supercomputing resource has not been secured and the figures in the S&T committee report are purely recommendations. The Government recognises the importance and value of investment in supercomputing capacity to improve weather and climate modelling. We will continue to work closely with BIS and other stakeholders across Government, to support the development of the business case for the next generation of supercomputing capacity.

Related articles

- MPs: Met Office needs more powerful supercomputer (ZDNet)
- Met Office 'needs supercomputers' (bbc.co.uk)
- VIDEO: Met office 'needs supercomputers' (bbc.co.uk)
- Met Office needs supercomputers, say MPs (Guardian)
- Met Office needs 10-year supercomputer plan (computer Weekly)
- New computers 'key to brighter Met Office' future Office (Yorkshire Post)

Date Created
February 2012

Has spring sprung?

Description

This week temperatures are forecast to reach 16 °C, the mildest of the year so far. This is unseasonably warm for February, which usually reaches highs of around 8 °C on average.

So is this the first sign of spring? Meteorologically speaking, no. For statistical purposes in meteorology, spring begins on the 1 March and ends on the 31 May. For many people though, spring begins on the date of the spring equinox, 20 March.

Although spring can be determined by calendar dates, the natural variability within the atmosphere means that, as far as the weather is concerned, year to year differences vary widely.

However, looking beyond the year to year differences we see that our climate is changing, records show spring has advanced 2-6 days per decade in the UK. Those with gardens need to start cutting their lawns almost two weeks earlier than they did in 2001.

Research undertaken by the Met Office Hadley Centre has also confirmed that the growing season of plants is likely to increase by around 40 days by 2080, due to the earlier start to spring and later end to autumn.

The mild but wet and windy weather is set to continue until the weekend, visit the website for your local forecast.

Date Created
February 2012

Met Office recognised as world-leading by Science and Technology Select Committee

Description

The Met Office welcomes that the Science and Technology Committee recognises the Met Office fulfils its role as the national weather forecasting service for the UK and is underpinned by a robust science strategy that delivers a cost effective and accurate service for the UK and beyond.

> **John Hirst, Met Office Chief Executive said: "This endorsement from the Science and Technology Committee affirms the trust the nation has in the Met Office to provide forecasts and warnings when it matters."**

During the course of the review, the committee heard about the importance of the Met Office's role in providing vital services for the UK and our world-class science. The Met Office is unique, combining world-leading science and operational infrastructure that supports us to 'pull through' our science to provide ever better forecasts and warnings.

> **Julia Slingo, Met Office Chief Scientist said: "I am delighted that it has been recognised that the Met Office science strategy has been very well received across the meteorological community. It provides a robust and cost-effective platform for the 'pull through' of our science for the benefit of the UK"**

The Science and Technology Committee identified the need for additional supercomputing resource. We welcome the committee's recommendation that further investment would be of value.

However, it is important to recognise that the Met Office has currently not secured any funding for additional supercomputing resource and the figures in the Science and Technology Committee report are purely recommendations.

The Government recognises the importance and value of investment in supercomputing capacity to improve weather and climate modelling. BIS, working closely with the Met Office and other stakeholders across Government, will continue to develop the business case for the next generation of supercomputing capacity.

In the mean time we will continue to provide the world-class forecasts the British public and our customers have come to expect.

Science and Technology Committee Thirteenth Report – Science in the Met Office

Related articles

- Met Office 'needs supercomputers' (bbc.co.uk)
- VIDEO: Met office 'needs supercomputers' (bbc.co.uk)

- Met Office needs supercomputers, say MPs (Guardian)

Date Created
February 2012

What is ‘feels like’ temperature?

Description

This article was updated on 17 March 2022

Ely (Cambridgeshire)
Wed 15 Feb
Options
Wed 15 Feb
Thu 16 Feb
Fri 17 Feb
Sat 18 Feb
Sun 19 Feb
Time
Regional warnings
Weather
Temperature (°C)
Wind speed & direction (mph)
Wind gusts (mph)
Visibility
Humidity (%)
Precipitation probability (%)
Feels like (°C)
UV index
0900 No warnings 7 14 26 Very Good 77 20 3 1
1200 No warnings 8 17 Very Good 75 20 4 1
1500 No warnings 9 13 Good 80 20 5 1
1800 No warnings 8 13 Good 87 20 5 0
2100 No warnings 8 12 Good 87 20 4 0
Issued at: 1000 on Wed 15 Feb 2012 Review our regional forecast

Have you ever stepped out of the house in the morning and thought, ‘I knew it would be cold, but perhaps not *this* cold!’

The temperatures that you normally see on our website represent the temperature of the air, but this takes no account of how we actually experience the temperature. It is our ‘feels like’ temperature that gives you a better idea about how the weather will actually feel when you step outdoors, where wind and humidity can make a big difference.

For example, in winter a strong wind can make you feel much colder than the measured temperature would indicate. Conversely on a humid day in summer it can feel uncomfortably hotter than the air temperatures would suggest on their own. The ‘feels like’ temperature takes these factors into account and should allow users to make a better assessment of conditions outdoors.

But how do you actually calculate the ‘feels like’ temperature?

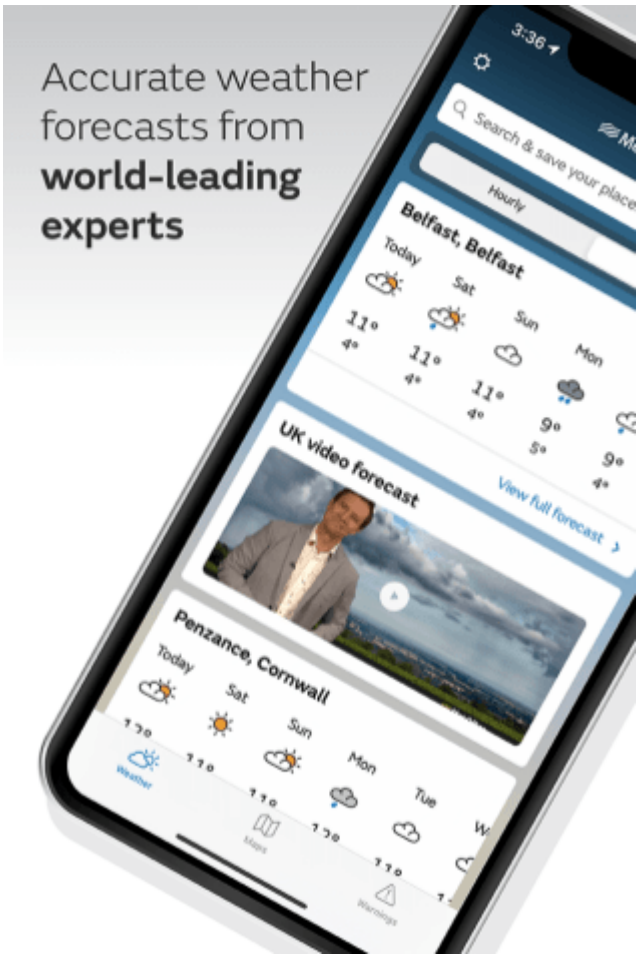
We calculate a ‘feels like’ temperature by taking into account the expected air temperature, relative humidity and the strength of the wind at around 5 feet off the ground (the typical height of a human face!), combined with our understanding of how heat is lost from the human body during cold and windy days.

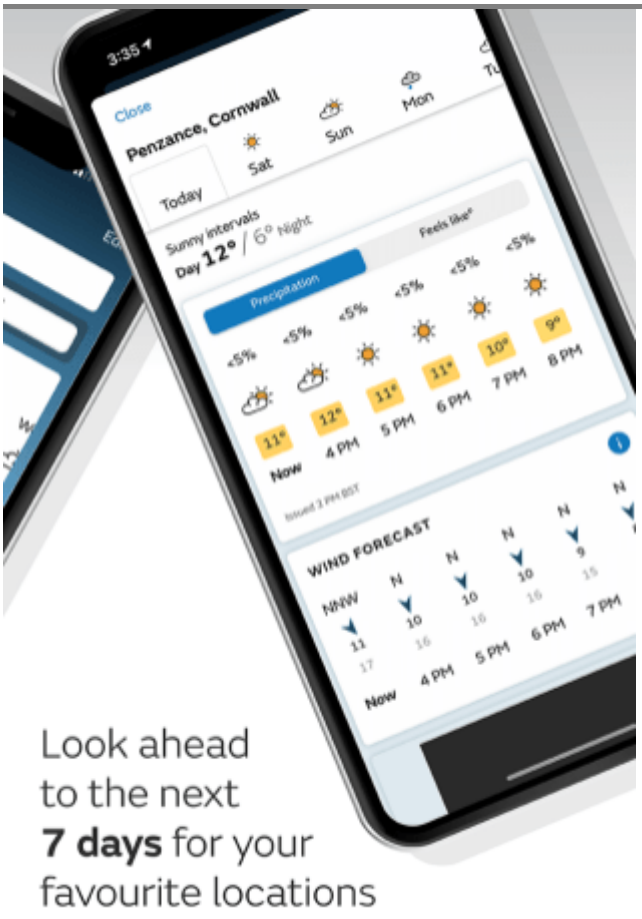
On windy days the speed of moisture evaporation from your skin increases and serves to move heat away from your body, making it feel colder than it actually is. The exception to this rule, however, is when temperatures climb higher. On warm days, wind chill becomes less significant. Instead, humidity plays a greater role.

When a human perspires, the water in their sweat evaporates. This results in the cooling of the body as heat is carried away from it. When humidity is high, the rate of evaporation and cooling is reduced, resulting in it feeling hotter than it actually is.

Using these facts we use a formula to adjust the air temperature based on our understanding of wind chill at lower temperatures, heat index at higher temperatures and a combination of the two in between.

You can get ‘feels like’ temperatures on our five day forecast and on our Android and iPhone apps.





Date Created
February 2012

Bitterly cold mornings continue for some this weekend

Description

Following a bitterly cold night across eastern England on Friday night, last night was not quite as cold. Friday night saw the lowest temperatures of the winter so far, falling to a biting -15.6C at Holbeach, Lincolnshire. On Saturday night the lowest minimum temperatures were across parts of southern and eastern England. The coldest locations, with values achieved early in the night before cloud amounts increased, were Cavendish: -12.7C Holbeach: -12.4C Cambridge: -12.2C Santon Downham: -11.9C Rothamstead: -11.7C.

Date Created
February 2012

Coldest temperatures of winter so far

Description

Last night and today have seen some of the lowest temperatures of the winter so far.

Official observations show Holbeach in Lincolnshire dropped to -15.6 °C overnight, beating the previous coldest temperature of this winter of -12.4 °C at South Newington in Oxfordshire overnight on 3-4 February.

Today has seen also the lowest day-time maximum temperature for the UK so far this winter, with Coningsby in Lincolnshire only getting up to -5.3 °C. The previous record for this winter was -2.8 °C, set at Cassley in Scotland on 15 January.

It's worth noting that some even lower temperatures have been quoted in the media. However, these are not official Met Office observations.

Our official observation sites conform to rigorous standards set by the World Meteorological Organization (WMO). This includes observation equipment undergoing regular checks and calibration, as well as meeting requirements about the location of the observation site to ensure readings aren't affected by other factors.

This doesn't mean readings from non-official sites are wrong, just that they cannot be officially recognised because they are not part of our WMO-approved network.

The reason last night and today have seen these low temperatures comes down to a combination of factors. Cold air from the east is still flooding over parts of the UK. Snow is also still lying in some places, and this can keep temperatures down by acting like an ice pack – as well as reflecting back energy from the Sun. Clear skies and light winds have also played a part, as these factors mean heat can radiate away into the sky.

Looking ahead, tonight is expected to be cold, although it is unlikely to be quite as cold as last night. As we move through next week, temperatures are expected to move closer to or even slightly above average. You can stay up to date with the latest outlook with our forecasts and warnings.

Coldest overnight temperatures for 10-11 February

-15.6 °C Holbeach, Lincolnshire

-15.5 °C Cavendish, Suffolk

-15.3 °C Cambridge, Cambridgeshire

-15.2 °C Wainfleet, Lincolnshire

-14.6 °C Santon Downham, Suffolk

Date Created
February 2012

Freezing rain and snow across the country as the cold weather continues.

Description

Snow fell across a large part of England yesterday evening and last night. We saw between 1 and 8cm of fresh snow – the highest snowfall being from Lincolnshire through Cambridgeshire to Bedfordshire. The snow turned to rain in some western areas overnight, with ice becoming a hazard on untreated surfaces.

The table below shows the amount of fresh snow recorded the country overnight into Friday 10 February.

UK SNOW DEPTHS 10 FEB 0700		
SITE NAME	**SNOW DEPTH (cm)**	**AREA**
CRANWELL	**8**	**LINCOLNSHIRE**
CONINGSBY	**6**	**LINCOLNSHIRE**
HEATHROW	**5**	**GREATER LONDON**
MIDDLE WALLOP	**4**	**HAMPSHIRE**
WITTERING	**4**	**CAMBRIDGESHIRE**
LECONFIELD	**4**	**HUMBERSIDE**
MARHAM	**3**	**NORFOLK**
BRIZE NORTON	**3**	**OXFORDSHIRE**
BENSON	**3**	**OXFORDSHIRE**
BOSCOMBE DOWN	**3**	**WILTSHIRE**

HIGH WYCOMBE, HQAIR	**3**	**BUCKINGHAMSHIRE**
ODIHAM	**2**	**HAMPSHIRE**
LARKHILL	**2**	**WILTSHIRE**
NORTHOLT	**2**	**GREATER LONDON**
FILTON	**2**	**BRISTOL**
WADDINGTON	**2**	**LINCOLNSHIRE**
HURN	**2**	**DORSET**
NOTTINGHAM, WATNALL	**1**	**NOTTINGHAMSHIRE**
BRIDLINGTON MRSC	**1**	**HUMBERSIDE**
DISHFORTH AIRFIELD	**1**	**NORTH YORKSHIRE**

The table below shows a list of the coldest spots across the country overnight into Friday 10 February.

UK MIN TEMPERATURES 10TH FEB 0900		
SITE NAME	**MIN TEMP (Celsius)**	**AREA**
HOUGHTON HALL	**-7.9**	**NORFOLK**
SANTON DOWNHAM	**-7.6**	**NORFOLK**
HOLBEACH NO 2	**-7.4**	**LINCOLNSHIRE**
BROOMS BARN	**-6.8**	**SUFFOLK**

CONINGSBY	**-5.5**	**LINCOLNSHIRE**
CAVENDISH	**-5.1**	**SUFFOLK**
CHARLWOOD	**-4.8**	**SURREY**
MARHAM	**-4.7**	**NORFOLK**
CRANWELL	**-3.8**	**LINCOLNSHIRE**
VELINDRE	**-3.5**	**POWYS**
LINGWOOD, STRUMPSHAW HILL	**-3.5**	**NORFOLK**
WADDINGTON	**-3.5**	**LINCOLNSHIRE**
BEDFORD	**-3.4**	**BEDFORDSHIRE**
BUNTINGFORD	**-3.4**	**HERTFORDSHIRE**
WOBURN	**-3.4**	**BEDFORDSHIRE**
NORWICH AIRPORT	**-3.3**	**NORFOLK**
CHARSFIELD	**-3.2**	**SUFFOLK**
LECONFIELD	**-3.1**	**HUMBERSIDE**
ROTHAMSTED	**-3.1**	**HERTFORDSHIRE**
WYCH CROSS	**-3.1**	**EAST SUSSEX**

The cold weather is set to continue over the weekend with sharp frosts in many areas as temperatures fall to between -6 °C and -10 °C, with ice continuing to be a hazard to travellers in some areas. Saturday should be dry and bright in most areas, but cloudy and mild conditions across Scotland are expected to spread south for Sunday.

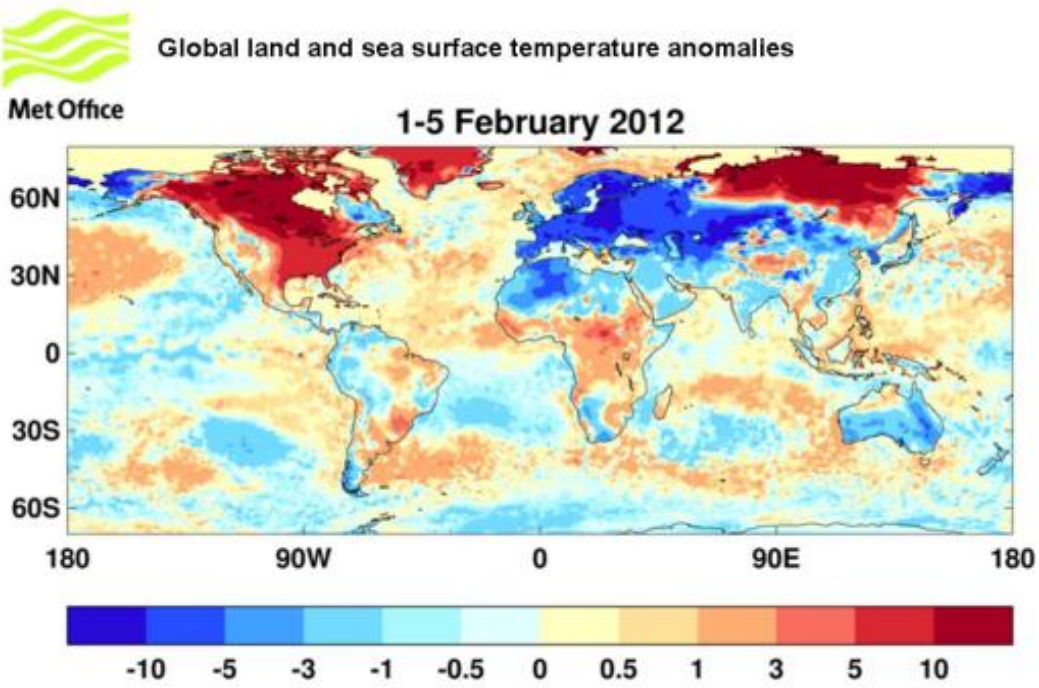
Date Created

February 2012

What’s bringing the cold weather to Europe and the UK?

Description

The current cold weather across Europe is in sharp contrast to the mild, wet and windy conditions across much of Europe through December and January. The cause of the cold conditions is the development of a large ‘blocking’ anticyclone over Scandinavia and north-western Russia. Easterly winds on the southern edge of this system has transported cold continental air westwards, displacing the more usual mild westerly influence from the Atlantic Ocean all the way to the British Isles.



Global land and sea surface temperature anomalies for 1-5 February 2012

A ‘blocking anticyclone’ can be thought of being like a very large boulder in a stream. This boulder acts like a dam, stopping the flow of the stream. In this instance a block stops the more normal westerly flow that brings milder conditions, allowing colder conditions to win out from the east.

The origin and persistence of blocks has been a subject of much research, and unfortunately we are still not absolutely clear on why we see blocks form. What we do know though is that the origins of this large blocked pattern across Europe can be traced back to the appearance of two individual regions of mid-latitude blocking over central Russia and the Bering Sea in mid January. Over the next two weeks, these two regions merged together to form the ‘block’ we see now.

The appearance of significant blocking after a long absence is reflected in the strong decline of the Arctic Oscillation (AO) index, which effectively describes a state in the atmosphere where the flow of

westerly winds is either stronger or weaker than usual in the northern hemisphere. It is currently in its negative phase, meaning the westerly flow is less strong than normal. The switch to a negative AO was seen in late January and highlights the dramatic change from generally strong westerly flow to the much less westerly or even easterly blocked state.

Despite the general unpredictability of blocking patterns, there were potential signs of an increased risk of a significant cold weather several weeks ago when the high altitude winds began to weaken in longer-range forecasts. We now understand that there is a clear link between the weakening of these high altitude winds and the surface weather that operates on monthly timescales and in situations like this it can provide a ‘window of opportunity’ for monthly forecasts to warn of increased risk. Based on this understanding, the Met Office 16 to 30 day forecast has reflected the increasing risk of cold conditions since mid January.

Met Office Hadley Centre scientists have investigated and demonstrated a clear stratospheric influence on surface climate during these events, with easterly winds burrowing down through the atmosphere to affect the jet stream and surface climate. The result is a switch from mild westerly Atlantic flow over Europe to easterly winds with an increased risk of cold extremes.

Weakening of the jet stream in the Stratosphere can allow easterly winds to move down through the atmosphere to give cold easterly winds at the surface. This can result in cold and snowy weather across the UK.

A similar situation occurred at this time of year in 2009 when we had significant snowfall across the UK and other parts of Europe, following a strong breakdown of the high altitude jet. Although only some cold winter spells can be predicted in this way, other recent winters such as 2006 and 2010 have also shown clear examples of the effect.

Date Created
February 2012

Last night’s temperatures: A night of contrast

Description

Freezing temperatures combined with rain in the north to bring treacherous ice conditions across parts of southern Scotland, northern England and north east Wales last night and this morning as temperatures fell well below freezing across Wales, England and southern Scotland.

However, there was a marked contrast further to the north and west. Milder Atlantic air across northern Scotland and Northern Ireland to the north and west of the rainband straddling the UK resulted in a relatively mild night for mid February.

The coldest place in the UK was Linton on Ouse in North Yorkshire, recording a low of -9.6 °C, whilst at the other end of the scale, Aultbea in Ross and Cromarty, saw temperatures fall no lower than 7.6 °C.

The two tables below show the coldest and mildest spots in the UK last night.

Coldest places in the UK overnight 8 – 9 February 2012

SITE NAME	MIN TEMP (celsius)	AREA
LINTON ON OUSE	-9.6	NORTH YORKSHIRE
TOPCLIFFE	-8.6	NORTH YORKSHIRE
BALA	-7.3	GWYNEDD
PATELEY BRIDGE	-7.0	NORTH YORKSHIRE
SENNYBRIDGE	-6.9	POWYS
WOODFORD	-6.7	CHESHIRE
RAVENSWORTH	-6.7	NORTH YORKSHIRE
CHURCH FENTON	-6.7	NORTH YORKSHIRE
DISHFORTH AIRFIELD	-6.7	NORTH YORKSHIRE
OKEHAMPTON	-6.5	DEVON
LEEMING	-6.4	NORTH YORKSHIRE
TREDEGAR	-6.2	GWENT
BINGLEY	-6.1	WEST YORKSHIRE
GOGERDDAN	-6.1	DYFED
EMLEY MOOR	-6.0	WEST YORKSHIRE
PRESTON MONTFORD	-6.0	SHROPSHIRE
BRADFORD	-5.8	WEST YORKSHIRE
ROCHDALE	-5.7	GREATER MANCHESTER
ALBEMARLE	-5.5	NORTHUMBERLAND
REDESDALE CAMP	-5.4	NORTHUMBERLAND

PENNERLEY	**-5.4**	**SHROPSHIRE**
LLYSDINAM	**-5.3**	**POWYS**
BRAMHAM	**-5.3**	**WEST YORKSHIRE**
BAINBRIDGE	**-5.1**	**NORTH YORKSHIRE**
CAPEL CURIG	**-5.0**	**GWYNEDD**

Mildest places in the UK overnight 8 – 9 February 2012

SITE NAME	MIN TEMP (celsius)	AREA
AULTBEA	**7.6**	**ROSS & CROMARTY**
SOUTH UIST RANGE	**6.8**	**WESTERN ISLES**
STORNOWAY AIRPORT	**6.7**	**WESTERN ISLES**
KINLOCHEWE	**6.6**	**ROSS & CROMARTY**
TIREE	**6.3**	**ARGYLL**
ALTNAHARRA	**6**	**SUTHERLAND**
BALLYKELLY	**5.8**	**LONDONDERRY**
SKYE: LUSA	**5.6**	**WESTERN ISLES**
ACHNAGART	**5.5**	**ROSS & CROMARTY**
ISLAY: PORT ELLEN	**5.5**	**ARGYLL**
MAGILLIGAN	**5.5**	**LONDONDERRY**
BALTASOUND	**5.3**	**SHETLAND**
FAIR ISLE	**5.3**	**SHETLAND**
MURLOUGH	**5.3**	**DOWN**
RESALLACH	**5.2**	**SUTHERLAND**
MACHRIHANISH	**5.2**	**ARGYLL**
CASTLEDERG	**5.2**	**TYRONE**
KILLOWEN	**5.1**	**DOWN**
BALLYWATTICOCK	**5**	**DOWN**
ST ANGELO	**4.8**	**FERMANAGH**
KIRKWALL	**4.8**	**ORKNEY**
LOCH GLASCARNOCH	**4.7**	**ROSS & CROMARTY**
WICK AIRPORT	**4.7**	**CAITHNESS**
HELENS BAY	**4.6**	**DOWN**
STORMONT CASTLE	**4.6**	**DOWN**

The battle between the milder Atlantic air and the very cold air in the southeast continues across the UK, bringing the risk of snow across parts of the country later today and into Friday. Whilst there is uncertainty about where the heaviest and most persistent snow will fall, accumulations of up to 10cm are possible in the worst affected regions. As a result Met Office warnings have been issued and there could be some disruption to travel.

The Met Office is working closely with government departments, contingency planners and transport agencies to make sure they have the best advice available to help them prepare for possible weather

impacts.

Date Created
February 2012

What is freezing rain and why does it happen?

Description

We take a look at what conditions lead to freezing rain.

Freezing rain happens when rain droplets fall through air thats temperature is below zero and freezes on impact with the ground or another object to form clear ice – also known as glaze. Conditions have to be ‘just right’ to get freezing rain and it doesn’t happen very often in the UK, making it a relatively rare phenomenon.

Generally, freezing rain starts its life as snow, ice, sleet or hail, but passes through a layer of warmer air on the way down. This causes it to melt and return to a liquid form. As it continues towards the ground, it then briefly passes through colder air again, causing the water droplets to become ‘supercooled’ – colder than 0 °C but still in liquid form. When these supercooled droplets fall on ground which is close to or below freezing, they can freeze on impact – quickly creating treacherous conditions.

An obvious question is how can water become ‘supercooled’ – as we know it usually turns into ice when it drops to 0 °C or below? This is because water needs small particles of dust or dirt – what’s called a nucleus – to freeze around. If there is no nucleus present, then water can remain in its liquid form at temperatures well below freezing – that is, until it comes into contact with something. It is common for water droplets in clouds to be in a supercooled state, but it is rarer for supercooled droplets to get to ground level. It’s also quite difficult to replicate the supercooling of water in a laboratory.

The effects of freezing rain can have large impacts. It can create a layer of ice on anything cold it comes into contact with – this means not only a potential for icy roads and pavements, but also a risk to things like aircraft and powerlines.

For more information on what to do in severe icy weather, visit our severe weather advice page. Keep up to date with your local weather forecast and warnings.

Date Created
February 2012

Freezing conditions continue as temperatures fall to -11.8 C last night

Description

The freezing weather continued to grip parts of the UK overnight once again with the lowest temperatures across North Yorkshire and other eastern parts of the UK where cloud breaks persisted through the night. The lowest temperature was -11.8 deg C at Church Fenton in North Yorkshire, where 12 cm of snow is still lying following the snow last weekend. The coldest place in Scotland was Cromdale with -9.5 deg C, whilst in Wales, Sennybridge in Powys fell as low as -7.7 deg C

The table below shows a list of the coldest spots across the country overnight into Wednesday 8th February.

LOCATION	MIN TEMP (deg C)	AREA
CHURCH FENTON	-11.8	NORTH YORKSHIRE
LINTON ON OUSE	-10.7	NORTH YORKSHIRE
TOPCLIFFE	-10.3	NORTH YORKSHIRE
CROMDALE	-9.5	MORAY
BUNTINGFORD	-8.9	HERTFORDSHIRE
DISHFORTH AIRFIELD	-8.8	NORTH YORKSHIRE
PATELEY BRIDGE, RAVENS NEST	-8.7	NORTH YORKSHIRE
LEEMING	-8.6	NORTH YORKSHIRE
SCAMPTON	-8.5	LINCOLNSHIRE
MARHAM	-8.2	NORFOLK
SOUTH NEWINGTON	-8.2	OXFORDSHIRE
BRAMHAM	-8.2	WEST YORKSHIRE
HIGH MOWTHORPE	-8.1	NORTH YORKSHIRE
LECONFIELD	-8.1	HUMBERSIDE
SANTON DOWNHAM	-7.8	NORFOLK
CRANWELL	-7.8	LINCOLNSHIRE
SHOBDON AIRFIELD	-7.8	HEREFORD & WORCESTER
WOODFORD	-7.8	CHESHIRE
MALHAM TARN	-7.7	NORTH YORKSHIRE
SENNYBRIDGE	-7.7	POWYS
ASTWOOD BANK	-7.7	HEREFORD & WORCESTER
NORMANBY HALL	-7.7	HUMBERSIDE
LITTLE RISSINGTON	-7.6	GLOUCESTERSHIRE
NOTTINGHAM, WATNALL	-7.5	NOTTINGHAMSHIRE

LEEK, THORNCLIFFE	**-7.5**	**STAFFORDSHIRE**
COTON-IN-THE-ELMS	**-7.4**	**DERBYSHIRE**
DUNKESWELL AERODROME	**-7.4**	**DEVON**
SHAP	**-7.4**	**CUMBRIA**
BEDFORD	**-7.3**	**BEDFORDSHIRE**
HOUGHTON HALL	**-7.2**	**NORFOLK**
LISCOMBE	**-7.2**	**SOMERSET**
FYLINGDALES	**-7.1**	**NORTH YORKSHIRE**
COLESHILL	**-7.1**	**WARWICKSHIRE**
NEWPORT (SALOP)	**-7.1**	**SHROPSHIRE**
PERSHORE	**-7.1**	**HEREFORD & WORCESTER**
MONKS WOOD	**-7.1**	**CAMBRIDGESHIRE**
PENNERLEY	**-7.1**	**SHROPSHIRE**
TREDEGAR, BRYN BACH PARK	**-7**	**GWENT**

The cold weather persists with the brightest weather across southwest England, Wales and northern England. A few snow flurries possible across the far southeast of England. Further north, Western and northern Scotland and Northern Ireland will see outbreaks of rain, possibly falling onto frozen surfaces in northwest Scotland. Tonight, there is an increasing chance of seeing freezing rain across parts of southern and eastern Scotland, bringing a significant ice risk. England and Wales remaining generally dry with a severe frost once again. On Thursday rain and snow is forecast to edge into northern England, generating an ice risk here. It will remain very cold across England and Wales, with the best of any brightness further west, although it will be milder in the north.

Date Created
February 2012

Cold night again for the UK

Description

The UK saw another cold night with Scotland seeing the lowest temperature. Aboyne, Aberdeenshire saw temperatures fall to -9.7°C. The lowest temperature in England was -8.6°C recorded at Church Fenton in North Yorkshire.

Below are a selection of minimum temperatures for the night 6/7th February:

Station name	Temp °C
Aboyne No 2	-9.7
Braemar No 2	-9.1
Church Fenton	-8.6
Shap	-7.8
Leconfield	-7.7
Lossiemouth	-7.2
Kinloss	-7
Eskdalemuir	-6.8
Carterhouse	-6.6
Altnaharra No 2	-6.5
Loch Glascarnoch	-6.4
Aviemore	-6.3
Woodford	-6.3
Dalwhinnie No 2	-6
Fyvie Castle	-6
Newton Rigg	-5.8
Drumnadrochit	-5.7
Lentran	-5.5
Redesdale Camp	-5.5
Linton On Ouse	-5.4
Tyndrum No 3	-5.4
Kinbrace, Hatchery	-5.2
Scampton	-5.1
Dyce	-5
Frittenden	-5

Tonight will again see another bitterly cold night with temperatures falling as low as -12°C to -15°C in some areas, which could make it the coldest night of the winter so far.

Date Created
February 2012

‘Spot on’ snow forecast supported by latest science from the Met Office

Description

Over the weekend our highly accurate forecasts of heavy snow and widespread ice enabled the country to prepare for the hazardous conditions helping to keep the country moving.

At Heathrow Airport, for example, snow arrived within ten minutes of when Met Office forecasters had predicted – giving vital guidance for those managing the situation.

This level of forecasting accuracy is far from easy to achieve, however. Snow is an example of a small-scale weather feature, affected by a number of variables and notoriously difficult to forecast.

The Met Office is using cutting-edge developments to improve the accuracy of forecasts in these challenging situations which deal with so-called ‘small scale’ weather.

This includes things like intense rain showers or thunderstorms – which can be just a few hundred metres across, or weather which depends on fine details of the land surface, such as snow or valley fog.

These types of weather can be very difficult to represent in forecasting models, which are the computer generated simulations of what the atmosphere – and weather – will do next.

Because the weather at a particular location is influenced by much larger scale weather patterns, models need to be run on a global scale even just to forecast for the UK.

Forecast models require a very large number of calculations and, with the computing power available, the global model the Met office runs uses a grid-scale of 25km (i.e. every grid-box is 25km x 25km).

At this resolution, large scale weather patterns will be well reproduced but the model will be unable to capture the detail of small scale weather. To tackle this, the Met Office has developed UKV.

This involves running a version of the model which focuses on the UK, allowing a much smaller 1.5km scale to be used. Information is fed in to the edges of UKV from the 25km global model.

The 1.5km grid-boxes enable UKV to capture things like snow much better, leading to improved forecasts in many situations.

In most situations, even with a 1.5km grid, current science and technology does not enable the prediction of the exact location and timing of each shower that passes over the UK. However, the increased detail gives a better indication of the character of the weather and could be useful for giving probabilistic forecasts – which give the chances of, for example, rainfall in a given place at a given time.

As well as the the 1.5km weather model helping with our forecasts in the last couple of days, they also helped with the accuracy of our snow forecasts in the very cold and snowy weather at the end of

2010. Back in November of that year, we saw numerous heavy snow-showers being carried inland from the sea in a NE wind caused significant disruption in the north east of England. The picture below shows that for the coarser 12 km model (NAE) showers stall over the coast causing a major underestimate of snow inland. This is a well known problem with models of this grid length. In contrast, the UKV is able to represent the showers more realistically and brings the showers inland, producing a much better forecast. The UKV better represents what actually happened as shown by the radar image to the left.

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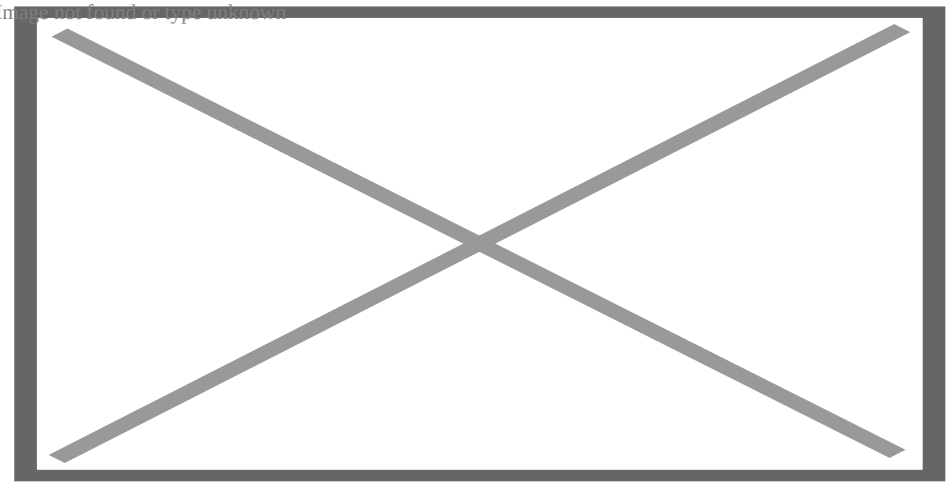


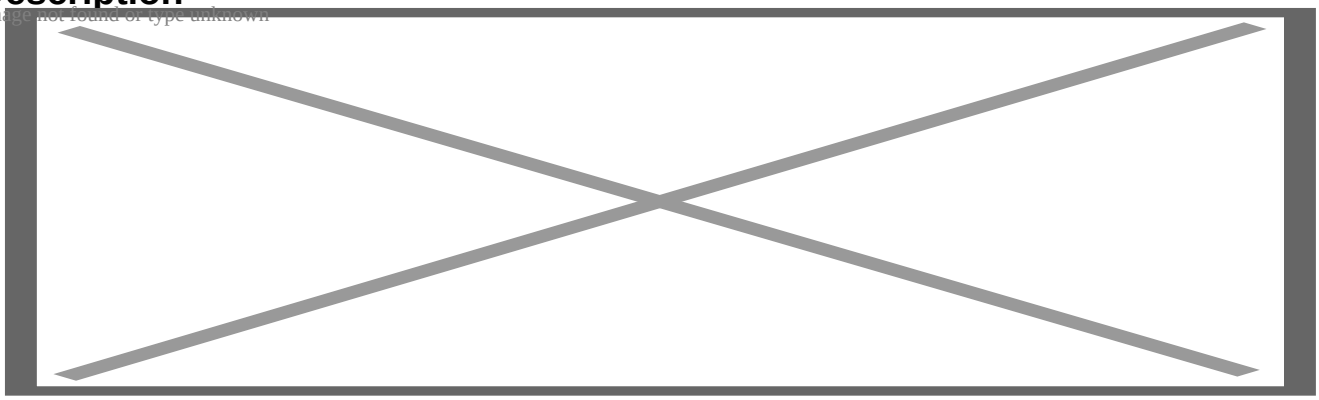
24 hour accumulations for 25 Nov 2010 from UKV and 12 km (NAE) models compared to that actually observed by radar. This shows an example of the advantages of a high resolution models

We are continuing to look at ways of even further improving the accuracy and detail of our forecasts. You can find a more in-depth article about UKV in our Research News section.

Date Created
February 2012

Met Office Severe Weather Warnings issued as snow turns to ice risk

Description



The Met Office has issued severe weather warnings across much of England and Wales as the snow that fell over the weekend brings the risk of ice as it freezes on Sunday night and into Monday morning.

Ice is likely to be a hazard on roads and pavements across parts of southeast Wales and much of England, except the southwest, potentially leading to the risk of disruption to travel on Monday morning. Along with the ice, fog patches are also likely to form overnight in many areas, adding to the risk of disruption to travel in parts of the UK.

Andy Page, Chief Forecaster at the Met Office, said: “There are a number of reasons why ice is likely to be a hazard during Sunday evening and overnight into Monday including snowfall from Saturday night persisting across eastern parts of England and snow melting and then refreezing on untreated surfaces.

“There is also a risk of showers affecting parts of northwest England this evening, which will then extend southeast into the Midlands and eventually parts of southeast England, including the London area, later in the night. Although most showers will fall as rain, which will freeze onto sub-zero surfaces in central and eastern parts of England, there is a lower probability that some of the showers may fall as snow in a zone extending from southwest Lincolnshire to East Sussex.”

Beyond this the split between less cold conditions in the north and west and colder conditions hanging on the east remains. Through much of the coming week eastern areas probably remaining largely dry, bright but cold whilst western parts cloudier with a chance of rain, and perhaps snow at times over the hills.

Date Created
February 2012

Met Office in the Media: The Sunday Times – ‘So, do we freeze or fry’

Description

Figures showing temperatures flatlining have given the climate debate fresh ferocity. Jonathan Leake, Science Editor of The Sunday Times, unpicks the row in ‘So, do we freeze or fry‘

John Prescott was apocalyptic. “Our polar ice caps are melting,” the then deputy prime minister thundered. “Only this weekend Mexico was hit by freak snowstorms . . . a world of drought and crop failures, rising seas, mass migration and disease . . . rising greenhouse grasses [sic] . . .”

The year was 1997 and Prescott had just come back from Kyoto in Japan to give the House of Commons his account of the latest climate talks.

Prescott’s terrifying warnings were backed by Britain’s leading climate scientists. Just before Kyoto a Met Office report warned that climate-related floods would put 50m people at risk of death from starvation in the coming decades. Whole island nations would disappear, it added, while the American Midwest, which helps to feed 100 nations, was likely to face drought and the North Pole might melt.

That was 15 years ago — what has happened to world temperatures since then? Last month came the suggestion that the answer was, embarrassingly, nothing. Research based on Met Office figures pointed to temperatures having been flat since 1997.

It was the kind of admission that those who doubt climate science pounce on. “Forget global warming,” trumpeted The Mail on Sunday, because “the planet has not warmed in 15 years”. It then cited other research, into the declining energy output of the sun, to suggest the real danger was from a big freeze, raising the prospect of a reprise of the frost fairs held on the frozen Thames in the 17th century.

Two days earlier The Wall Street Journal had published a letter from 16 scientists advancing similar arguments. It said: “The lack of warming for more than a decade . . . suggests that computer models have greatly exaggerated how much warming additional CO2 can cause.”

Since then the same cry has been taken up by innumerable bloggers, exemplified by David Whitehouse, formerly the BBC’s science editor, now an adviser to the Global Warming Policy Foundation, which frequently challenges the views of climate-change scientists. He, it turns out, was a source of the research that sparked the whole row.

“We set out to see how long it had been since the temperature had risen, and 15 years was what emerged from the data set,” he said. “It raises serious questions about how the Met Office models future climate.”
It seemed a strong argument but the climate scientists came out fighting, starting with a furious blog posted by the Met Office itself, which attacked the Mail on Sunday article as “entirely misleading”.

That was followed by another letter in The Wall Street Journal, this time signed by 35 leading climate scientists, who pointed out that few of the signatories to its sceptical predecessor were actually

involved in climate research.

“Do you consult your dentist about your heart condition?” it asked, adding: “Climate experts know that the long-term warming trend has not abated in the past decade. In fact, it was the warmest on record.”

What were the rest of us meant to make of this? Some scientists appear to be warning we will fry, while other sources fear we will freeze. For the public the outcome is, increasingly, confusion. Where might the truth lie?

Perhaps the simplest first step is to put aside the arguments and get back to the data. Is it really true that global temperatures have not risen since 1997?

The simple answer is: they have risen, but not by very much. “Our records for the past 15 years suggest the world has warmed by about 0.051C over that period,” said the Met Office. In layman’s terms that is 51 thousandths of a degree.

These figures come from the Met Office HadCruT3 database, which takes readings from 3,000 land stations around the world, along with oceanic readings from a similar number of ships and buoys.

However, HadCruT3 is just one of several global temperature databases, each overseen by different scientists and calculated in slightly different ways. This allows each group to cross-check results, confirming findings or spotting errors.

One, held at the National Climate Data Centre (NCDC), run by America’s National Oceanic and Atmospheric Administration, suggests that global temperatures rose by an average of 0.074C since 1997. That’s small, too — but it is another rise.

A third and very different data set is overseen by John Christy, professor of atmospheric science at the University of Alabama in Huntsville. He gathers figures from three satellites that orbit the Earth 14 times a day. They measure the average temperature of the air from ground level to a height of 35,000ft, a method completely different from those of the Met Office and NCDC. Oddly, given his reputation as a climate sceptic, he found the biggest rise of all.

“From 1997-2011 our data show a global temperature rise of 0.15C,” he said. “What’s more, our satellites have been taking this data since 1979, and over that period [the] global temperature has risen 0.46C, so the world has been getting warmer.”

Overall, then, the world has got slightly warmer since 1997. Perhaps the real question is: why has it warmed so much less than was predicted by the climate models?

For most climate scientists the answer is simple. “Fifteen years is just too short a period over which to measure climate change,” said Peter Stott, head of climate monitoring at the Met Office. “The world undergoes natural temperature changes on all kinds of time scales from daily variations to seasonal ones. It also varies naturally from year to year and decade to decade.”

Whitehouse accepts this point. “The records do show that global temperatures have risen by about 0.4C over the past three decades, most of it in the 1990s,” he said.

“I accept that CO2 is a greenhouse gas that might warm the world but the key issue is how strong the

effect is and how the data compare with the models used to predict the future."

This is an interesting admission, turning what had appeared to be an attack on the keystones of climate science — that greenhouse gases cause global warming — into a "shades of grey" debate over whether global warming will happen slowly and steadily or in jerks, accelerating in some decades but then slowing or even reversing a little in others.

For the critics of climate science this is a crucial point — but why? The answer goes back to the 2001 and 2007 science reports from the Intergovernmental Panel on Climate Change that had predicted the world was likely to warm by an average of about 0.2C a decade. The implication was that temperatures would rise steadily, not with 15-year gaps. The existence of such gaps, the critics argue, implies the climate models themselves are too flawed to be relied on.

Other leading climate scientists have raised similar issues. One is Judith Curry, professor of atmospheric sciences at the Georgia Institute of Technology. She argues that global climate is affected by so many factors, ranging from solar output to volcanic eruptions, that predicting how the world will warm is impossible.

Crucially, however, Curry accepts that greenhouse gas emissions are likely to lead to long-term warming. She wrote on her blog: "We don't know what the climate will be for the next several decades. In terms of when global warming will come 'roaring back', it is possible this may not happen for the first half of the 21st century."

For Curry and many others one of the key unresolved issues lies in the behaviour of the sun, whose output appears to be undergoing a steady but small decline. Most scientists accept that this will reduce global warming. The debate is over just how strong this effect will be, with people such as Curry suggesting it could be powerful while others see it as small.

Among the latter is Mike Lockwood, professor of space physics at Reading University's meteorology department, who believes the sun has been in a "grand solar maximum" since the 1960s, thought to be the longest-lived peak in its output for more than 9,000 years.

"A decline in activity is long overdue," he said. "How deep will it go? We think there is about an 8% chance that it will drop below the famous Maunder minimum."

This was a 60-year period, starting in about 1645, when the sun had very few sunspots; it was marked by an unusually high proportion of cold winters in Europe.

That sounds ominous but Lockwood calculates that even a decline in activity on that scale would now have little effect because the impact would be far smaller than the opposing effects of surging greenhouse gas emissions.

What about the most evocative image of all — the prediction that the Thames might freeze over? This did happen in 1963, but far upstream in the stretches around Windsor. The idea that the lower tidal reaches might be in similar danger generates little but scorn from all sides.

Lockwood said: "The disappearance of frost fairs is nothing to do with climate. It is because the old London Bridge — really more of a weir — was pulled down and the embankments were put in. So the

river now flows much too fast to freeze and is also a lot saltier. Even a return to Maunder minimum solar conditions would not cause the Thames to freeze again so far downstream."

This article first appeared in The Sunday Times on Sunday 5 February 2012.

Date Created
February 2012

Snow brings disruption in the east as ice becomes hazard into next week

Description

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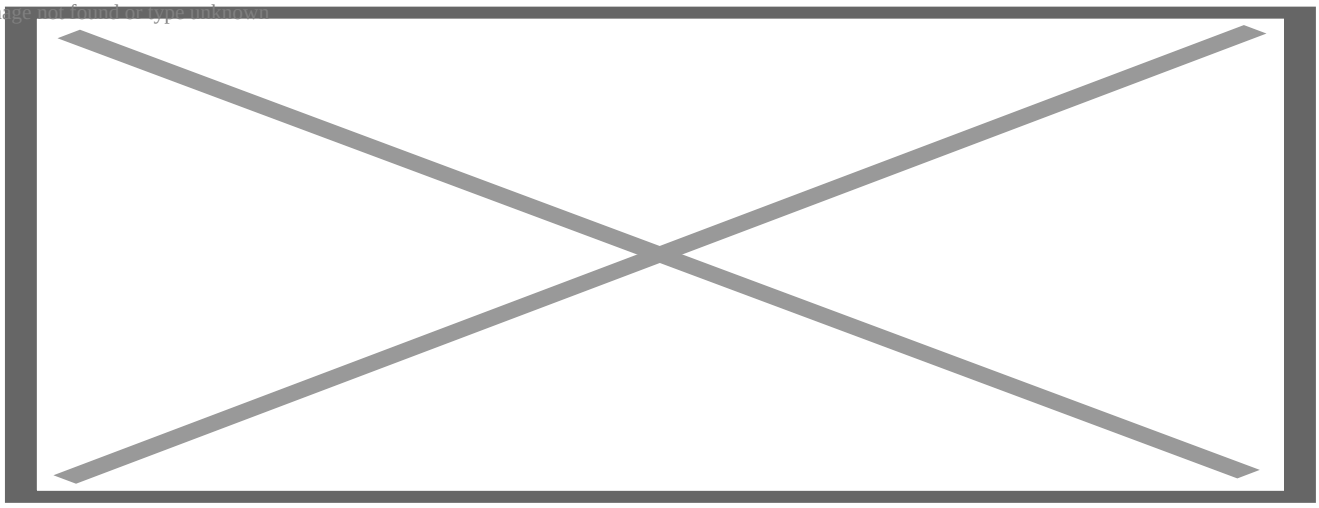

Credit: Marco Anderson

As forecast, an Atlantic weather front pushed across the UK through yesterday and overnight bringing snowfall to many parts of the UK. As expected the worst of the conditions were across the east of the UK, where the cold air from the continent was able to hold on, leading to significant snowfall, especially across South East England, East Anglia, Lincolnshire, parts of the Midlands, Yorkshire, the North East and the southern uplands of Scotland.

Further west, although there was some snow for a time, the milder air, associated with the weather front soon turned the snow to rain, leaving a grey rather than a white start to Sunday.

As the snow and rain moved away, skies cleared allowing it to turn cold again with widespread ice in many conditions. The Met Office still have an Amber warning for icy roads in force at the moment valid until midday today. Overnight lows got to -9.8C at Bramham, -8.9C at Church Fenton, -8.4C at Topcliffe, Dishforth and Leeming, -7.3C at Church Fenton. -7.2C at Linton-on-Ouse and -6.2C at Ravensworth.

The table below shows snow depths recorded at 9 am this morning.

Location	Snow Depth (CM)
Church Fenton	15
Wattisham	15
Marham	14
Conningsby	12
Cranwell	12

Leek, Thorncliffe	11
Herstmonceux	11
Northolt	10
Bingley	10
High Wycombe	9
Wittering	9
Eskdalemuir	8
Waddington	8
Coleshill	7
Heathrow	7
Nottingham, Watnall	7
Charlwood	6
Leconfield	6
Brize Norton	4
Woodford	4
Leeming	4
Loftus	4
Benson	3
Odiham	3
Albemarle	3
Odiham	3
Larkhill	3
Sennybridge	3
Andrewsfield	2
Hereford, Credenhill	2
Middle Wallop	2
Shawbury	1
Manston	1

The band of snow has now cleared the far southeast of England and for the rest of the day it will remain largely dry, but cold in the east, Further west it will turn cloudier with some outbreaks of rain, with some sleet or snow on higher ground. Overnight, cloud and a little rain will slowly spread to many places, although eastern Scotland will probably remain dry. Cold and foggy, especially in areas with lying snow and frosty in the east.

Heading into next week there is only a little snow in the forecast at the moment. Monday will be rather cold with ice likely to be a hazard especially in the southeast. It will then be generally cloudy with only occasional brighter intervals. Patchy rain will affect many areas, this mainly light. It will stay very cold in the east and southeast, but will be less cold elsewhere.

Date Created
February 2012

Another cold night across the UK as snow arrives

Description

It was another bitterly cold night across the UK last night, especially across England. The coldest place in England was South Newington, Oxfordshire where temperatures fell to -12.4 deg C, beating last night as the coldest night of the winter so far. In Wales, Tredegar was the coldest spot at -9.5 deg C whilst in Scotland Altnaharra saw temperatures fall as low as -7.2 deg C.

The list below gives all stations in the UK that saw temperatures fall below -8 deg C.

Station Name	Min Temp (deg C)
South Newington	-12.4
Benson	-11.7
Pershore	-11.1
Hurn Airport	-11.0
Larkhill	-10.2
Brize Norton	-10.1
South Farnborough	-10.1
Yeovilton	-10.1
Boscombe Down	-10.0
Odiham	-10.0
Westonbirt	-9.9
Redesdale Camp	-9.6
Hereford/Credenhill	-9.6
Woburn	-9.6
Tredegar	-9.5
Lyneham	-9.4
Aboyne	-9.3
Middle Wallop	-9.3
Wisley	-9.2
Alice Holt Lodge	-9.2
Winchcombe	-9.
Monks Wood	-8.9
Church Lawford	-8.8
Otterbourne	-8.8
Shawbury	-8.6
Sennybridge	-8.6
Shobdon	-8.6
Exeter Airport	-8.5
Usk No2	-8.5
Winterbourne	-8.4
Coleshill	-8.3
Little Rissington	-8.3

Coventry Coundon	-8.3
Leconfield New	-8.2
Coningsby	-8.2
Wainfleet	-8.2
Northolt	-8.2
Wiggonholt	-8.2
Scampton	-8.1
Bedford	-8.1
Bristol/Filton	-8.1
Dunkeswell	-8.1
Rothamstead No 2	-8.1
Pershore	-8.1
Braemar No 2	-8.1
Charlwood	-8.0
Sutton Bonington	-8.0
Winterbourne No 2	-8.0
Santon Downham	-8.0

Today, as an Atlantic front moves in from the west it will come up against this cold air and we're likely to see a mixture of rain, sleet and snow across the UK.

Many parts will see some snow through the day and overnight into Sunday morning, but about the risk is highest in central and eastern areas where we could see up to 5-10cm of snow.

With this risk of snow and ice over the next few days it is important people stay up to date with our weather forecasts and warnings for the latest information."

Date Created
February 2012

Coldest night of the winter so far

Description

Last night saw a severe frost across the UK with temperatures falling to their lowest this winter in many places.

The lowest temperature recorded last night was -11.3°C at Sennybridge in Powys, Wales.

Below are a selection of minimum temperatures for the night 2/3rd February:

Sennybridge, Powys -11.3°C
Braemar, Aberdeenshire -10.9°C
Benson, Oxfordshire -10.8°C
Altnaharra, Highlands -10.4°C
Woburn, Bedfordshire -9.9°C
Okehampton, Devon -9.7°C
Redesdale Camp, Northumberland -9.6°C
Shap, Cumbria -9.2°C
Pershore, Worcestershire -8.9°C
Coningsby, Lincolnshire -8.6°C
Katesbridge, County Down -8.1°C

Tonight will be another cold night with temperatures falling to between -6°C and -8°C in many places and perhaps as low as -11°C in rural areas.

Date Created
February 2012

Wintry weekend in store

Description

This weekend will see a marked change in the weather as the dry spell makes way for snow and ice in many parts.

Over the past few days we have seen the coldest spell of winter so far, as very cold air has flooded across the UK from the continent. Temperatures have dropped as low as -9.4 °C in Shap, Cumbria, and -10 °C is possible in places tonight.

Snow showers are expected along parts of the eastern coastline today and tomorrow, but most places will continue to see bright, dry and cold conditions.

Things are set to change as we go through into Saturday, however, as an Atlantic front moves in from the west.

Paul Gundersen, Chief Forecaster at the Met Office, said: “As this front moves in from the west it will come up against cold air and we’re likely to see a mixture of rain, sleet and snow across the UK.

“It’s a finely balanced situation, so there is some uncertainty about which areas will see the most significant snowfall, but at the moment the risk is highest in central and eastern areas where we could see up to 5-10cm of snow.

“With this risk of snow and ice over the next few days it is important people stay up to date with our weather forecasts and warnings for the latest information.”

Later on Saturday it is likely that northern and western parts of the UK will see slightly less cold conditions take over, with rain more likely than snow. However, with the rain falling on cold ground, there is a widespread ice risk.

Thereafter this east/west split is likely to continue, with the south and east remaining cold with ice and freezing fog likely. The north and west should be milder.

Date Created
February 2012